

AMENDMENTS

In the Claims:

Please substitute claims 39, 40, 42-44, 49-50, 52-54, and 61-79 presented below for claims 39, 40, 42-44, 49-50, 52-54, and 61-79 previously presented. The status of each claim presented in this application is indicated. Currently amended claims are shown with additions underlined and deletions shown in [brackets]. No new matter is added by these amendments.

Claims 1-38 (Canceled)

39. (Currently Amended) The[A force feedback interface] device[as recited in]of claim 42, further comprising an indexing button provided on said force feedback interface peripheral, said indexing button enabling an indexing mode[when depressed by said user].

40. (Currently Amended) The[A force feedback interface] device[as recited in]of claim 42, wherein said actuator is controlled by a local processor in response to signals received from said host computer.

41. (Canceled).

42. (Currently Amended) A[force feedback interface device in communication with a host computer, the force feedback interface] device, comprising:

at least one sensor [that detects]configured to detect one of a motion [or]and a position of a manipulandum,[of said force feedback interface device when manipulated by a user, wherein] a location of a cursor displayed by [said]a host computer in communication with the device[is]being responsive to said manipulation of said manipulandum[by said user];

at least one actuator operative to output a force feedback sensation[forces to a user of said force feedback interface device]; and

a force functionality button provided on said force feedback interface device and manipulatable by said user, [wherein]said force functionality button configured to [toggles]toggle the output of [a]the force feedback sensation output by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user, wherein said force sensation applied by said actuator when or after said force functionality button is depressed by said user, [wherein] said force feedback sensation [is]being associated with [a]said cursor crossing a border of [an icon] a click surface, [and wherein] said force feedback sensation [is]being a resistive spring force resisting motion of said cursor into said [icon]click surface.

43. (Currently Amended) The[A force feedback interface] device[as recited in]of claim 42, wherein said [icon]click surface is selected by said cursor when said cursor moves [into]a predetermined threshold distance into said [icon]click surface.

44. (Currently Amended) The[A force feedback interface] device[as recited in]of claim 42, wherein said spring force enables an isometric control mode, [wherein]an amount of penetration of said manipulandum against the spring force [controls]controlling a speed of scrolling of a document displayed by said host computer.

Claims 45-48 (Canceled).

49. (Currently Amended) [A]The method [as recited in]of claim 52, further comprising providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode[when depressed by said user].

50. (Currently Amended) [A]The method [as recited in]of claim 52, wherein said actuator is controlled by a local processor in response to signals received from said host computer.

51. (Canceled).

52. (Currently Amended) A method[for controlling a force feedback interface peripheral, said force feedback interface peripheral including a force functionality button, said method], comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;

providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button manipulatable by said user;

enabling a cursor to be controlled on a graphical display of a host computer, the displayed location of said cursor being responsive to manipulation of a portion of said force feedback interface peripheral[by said user]; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon the graphical display of said host computer, said toggling based on said manipulation of said force functionality button [by said user], [wherein said force sensation is applied by said actuator when or after said force functionality button is depressed by said user, wherein]said force feedback sensation [is]being associated with [a]said cursor crossing a border of [an icon]a click surface, [and wherein]said force feedback sensation [is]being a resistive spring force resisting motion of said cursor into said [icon]click surface.

53. (Currently Amended) [A]The method [as recited in]of claim 52, further comprising selecting the click surface based on movement of the cursor[wherein said icon is selected by said cursor when said cursor moves into] a predetermined threshold distance into [said icon]the click surface.

54. (Currently Amended) [A]The method [as recited in]of claim 52, further comprising enabling [wherein said spring force enables]an isometric control mode, [wherein]an amount of penetration of the manipulandum against the spring force [controls]controlling a speed of scrolling of a document displayed by [said]the host computer.

Claims 55-60 (Canceled).

61. (Currently Amended) The[A force feedback interface] device[as recited in]of claim 42, [wherein]said button [is]being a first button that can function as a first force functionality button providing a first force functionality mode, [and]the device further comprising:

a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button [by said user]causes a second force functionality mode of said force feedback interface device to be active, said second force functionality mode being different from said first force functionality mode.

62. (Currently Amended) The[A force feedback interface] device[as recited in]of claim 61, wherein said second force functionality button toggles a pressure scrolling mode, [wherein]a spring force [is]being output in said pressure scrolling mode on said manipulandum opposing the movement of said cursor through a border of a [designated graphical object or region]click surface, [and wherein]a rate of scrolling of an object [is]being controlled by an amount of penetration of said manipulandum against said spring force.

63. (Currently Amended) A [force feedback interface device in communication with a host computer, the force feedback interface]device, comprising:

at least one sensor that detects a motion or position of a manipulandum [of said force feedback interface]coupled to said device [when manipulated by a user], [wherein]a location of a cursor displayed by [said]a host computer in communication with the device being [is] responsive to said manipulation of said manipulandum[by said user];

at least one actuator operative to output a force feedback sensation[forces to a user of said force feedback interface device];

an indexing button provided on said [force feedback interface peripheral]device, said indexing button enabling an indexing mode[when depressed by said user]; and

a force functionality button provided on said [force feedback interface]device and manipulatable by said user, [wherein]said force functionality button toggles the output of [a]the force feedback sensation output by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button[by said user].

64. (Currently Amended) [A]The method [as recited in]of claim 52, [wherein]said force functionality button [is]being [a first button that can function as]a first force functionality button [providing a first force functionality mode], [and]the method further comprising providing a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button by said user causes a second force functionality mode [of said force feedback interface device]to be active, said second force functionality mode being different from said first force functionality mode.

65. (Currently Amended) [A]The method [as recited in]of claim 64, [wherein]said second force functionality button [is]being enabled to toggle a pressure scrolling mode, wherein a spring force is output in said pressure scrolling mode on said portion of said force feedback [Interface]interface peripheral opposing the movement of said cursor through a border of a designated graphical object or region, [and wherein]a rate of scrolling of an object [is]being controlled by an amount of penetration of said portion of said force feedback interface peripheral against said spring force.

66. (Currently Amended) A method, [for controlling a force feedback interface peripheral, said force feedback interface peripheral including a force functionality button, said method]comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;

providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button being manipulatable[by said user];

providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user;

enabling a cursor to be controlled on a host computer, the displayed location of said cursor being responsive to manipulation of a portion of [said]a force feedback interface peripheral[by said user]; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region

upon the graphical display of said host computer; said toggling based on said manipulation of said force functionality button by said user.

67. (Previously Added) A device, comprising:

a sensor configured to detect a movement of the sensor and to output a position signal, the position signal operative to update data values associated with a location of a cursor displayed on a graphical interface;

an actuator configured to output haptic feedback based on the location of the cursor displayed on the graphical interface; and

a button coupled to said actuator, the button configured to selectively modify the haptic feedback output by said actuator when the data values associated with the location of the cursor are associated with one of a graphical object and graphical region displayed on the graphical interface, the haptic feedback being representative of a resistive spring force opposing a movement of said cursor displayed on the graphical interface.

68. (Previously Added) The device of claim 67, further comprising:

an indexing button coupled to the actuator, said indexing button configured to enable an indexing mode.

69. (Previously Added) The device of claim 67, wherein the actuator is configured to be controlled by a local processor, the local processor configured to receive a control signal from a host computer coupled to the graphical interface.

70. (Previously Added) The device of claim 67, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a magnitude of the haptic feedback.

71. (Previously Added) The device of claim 67, the button being a first button, the haptic feedback being a first haptic-feedback mode, the device further comprising:

a second button configured to actuate a second haptic-feedback mode.

72. (Currently Amended) A method, comprising:

outputting a position signal, the position signal being based on a movement of a haptic-feedback device;

updating data values associated with a location of a cursor displayed on a graphical interface, the updating being based on the position signal;

outputting haptic feedback at the haptic-feedback device based on a feedback signal, the feedback signal being based on the data values associated with the location of the cursor corresponding to data values associated with one of a graphical object and graphical region displayed on the graphical interface; [and]

selecting a type of haptic feedback to be provided to the haptic feedback device using a button on the haptic-feedback device; and

modifying the [output]type of [the]haptic feedback output based on the selected type of haptic feedback[using a button coupled to the haptic-feedback device].

73. (Previously Added) The method of claim 72, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a magnitude of the haptic feedback.

74. (Previously Added) The method of claim 72, the haptic feedback being a first haptic feedback, the button being a first button, the method further comprising:

outputting a second haptic-feedback based on the feedback signal;

modifying the output of the second haptic-feedback using a second button coupled to the haptic-feedback device.

75. (Currently Amended) The method of claim 74, wherein the outputting the second haptic-feedback includes outputting a [texture]haptic feedback with a different force functionality than the first haptic feedback.

76. (Currently Amended) A device, comprising:

a sensor configured to detect a movement of the sensor and to output a position signal, the position signal operative to update data values associated with a location of a cursor displayed on a graphical interface;

an actuator configured to output haptic feedback based on the location of the cursor displayed on the graphical interface; and

a button coupled to said actuator, the button configured to selectively modify the type of haptic feedback output by said actuator when the data values associated with the location of the cursor are associated with one of a graphical object and graphical region displayed on the graphical interface, the haptic feedback being a first haptic-feedback when the button is in a first position and being a second haptic-feedback when the button is in a second position.

77. (Previously Added) The device of claim 76, wherein the first haptic-feedback is representative of a resistive spring force and the second haptic-feedback [is representative of texture]has a different force functionality than the first haptic feedback.

78. (Previously Added) The device of claim 77, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a magnitude of the first haptic feedback.